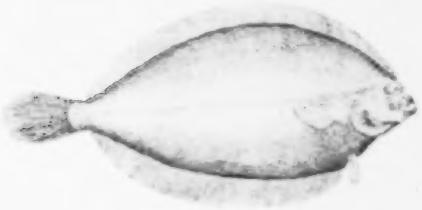

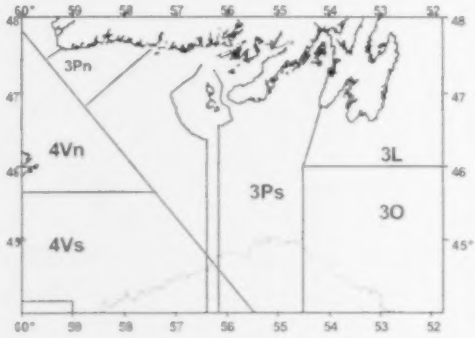

Witch Flounder in NAFO Subdivision 3Ps

Background

Witch flounder is a deepwater flatfish which reaches its northern limits in the Northwest Atlantic near Hamilton Bank off southern Labrador but extends as far south as the east coast of the southern USA. In Subdivision 3Ps, it is primarily distributed along the slope around St. Pierre Bank as well as at the mouth of Fortune Bay off Newfoundland's south coast.

It is a long-lived, slow growing species and has been aged well over 20 years old, however, the number of age groups comprising the witch flounder stock in Subdiv. 3Ps has been reduced substantially since the mid 1970's. Fish older than 13 years were rarely seen in either the commercial or survey catches by the early 1990's.

Spawning occurs over a rather protracted period usually extending from March through to September for most areas of the Northwest Atlantic. However, in this area spawning takes place early by comparison with highest intensity in the period January-March. During the winter and spring months it can be found in spawning concentrations along the continental slope of St. Pierre Bank especially in Halibut Channel and it is here at this time when most commercial fishing operations occur and catch rates are generally highest.

Summary

- Mean annual catch less than 400 tons from 1994-99 compared to 1000 tons during 1986-93
- Mean biomass estimate during 1992-99 about two-thirds of the 1983-92 period
- No indication of increased recruitment

Species biology

The age and size structures of the population determined from survey data appear to have remained relatively stable since 1983. An industry sponsored survey in 1998 showed similar results. There has been little change in growth pattern at least during the late 1980's and up until 1994, the last year age data were available.

The Fishery

Landings of witch flounder in NAFO Subdiv. 3Ps fluctuated mainly between about 300 and 1000 t annually since the early 1970's (Fig. 1). From 1986-93, landings were relatively stable averaging around 1000 tons annually, however, since then have not exceeded 500 tons and were as low as 250

tons in 1996. During the 1980's the catch was primarily a by-catch of other groundfish fisheries.

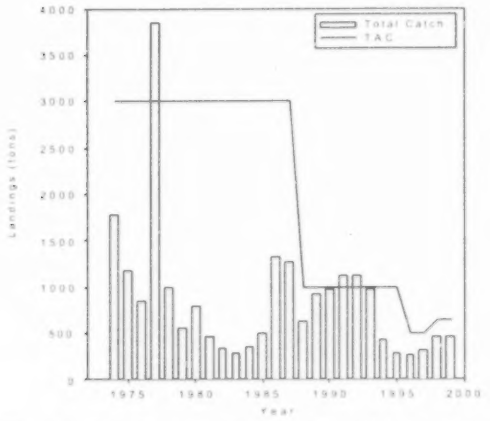

Fig. 1 Landings and total allowable catches (TAC's) of witch flounder in NAFO Subdivision 3Ps during 1974-99.

Landings from this stock have been taken mainly by Canadian trawlers fishing offshore on St. Pierre Bank. However, a significant portion of the landings is taken also by small Scottish/Danish seiners and gill-netters fishing primarily in Fortune Bay. In earlier years, fishermen from St. Pierre and Miquelon also caught small amounts of witch flounder on St. Pierre Bank although this no longer appears to be the case.

The fishing pattern for offshore Canadian participants since about 1993 has remained much the same with fishing being conducted mostly at the south-eastern tip of St. Pierre Bank in depths ranging from 200 to 900 m and sometimes deeper. Although most of the seine and gillnet landings have been in area 3Psb there has been some increase in the landings in 3Psa in recent years.

Although traditionally witch flounder has been fished primarily in depths of about 200-400 meters (109-219 fathoms), more recently the fishery has taken place mainly in depths well in excess of 900 meters (492 fathoms).

Industry perspective

Most of the catches since about 1993 taken by trawlers in the offshore are from a relatively small localized area of Halibut Channel where fishing depths usually exceed 500-700 m. Due to the closure of the American plaice and cod (until recently) fisheries in Subdiv. 3Ps from 1994, combined with a 5% by-catch constraint, the fishery for witch flounder has been hampered and has at least partly resulted in the low catch levels since then.

Resource Status

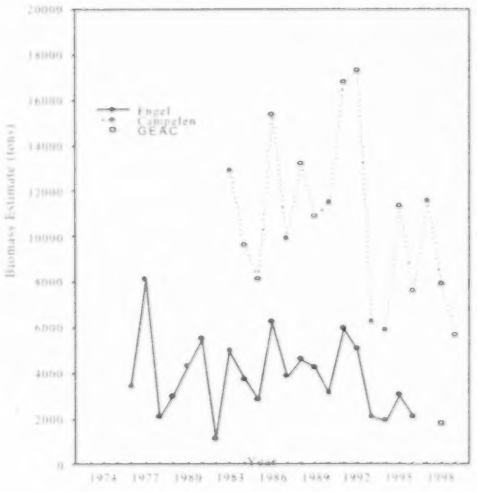

Fig. 2 Biomass indices of witch flounder from surveys in NAFO Subdivision 3Ps.

Although survey stock size indices are highly variable (Fig. 2) the biomass index during recent years suggests that the biomass is on

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average about two-thirds that of the late 1980's and early 1990's when annual catches were relatively constant around 1000 tons. Although some fish below 15 cm were observed in the recent surveys, they did not reflect any increase in recruitment in the abundance indices.

Sources of uncertainty

Age data have not been available since 1994. This precludes the use of any age-based assessment tools. Given the noise in the survey indices for this stock, age structured analyses are essential in order to provide any confidence in current stock size estimates. Attempts were made to conduct a surplus production assessment, which doesn't require age data; however, due to the lack of dynamic range in the available data sets this approach was not successful.

Outlook

Stock size estimates during the last several years have fluctuated within a range which on average is about two-thirds of the average stock size during the late 1980's and early 1990's. Annual catches during this period have been about 1000 tons. Considering the stability in distribution, age structure and growth patterns observed over many years, fishing at recent catch levels should not be harmful to the stock. Nevertheless, caution is advised given the lack of more detailed information available on recruiting year-classes.

For more Information

Contact: **W.R. Bowering**
NW Atlantic Fisheries Center
P.O. Box 5667 St. John's, NF
A1C 5X1

Tel: 709-772-2054
Fax: 709-772-4188
E-mail:
boweringr@dfo-mpo.gc.ca

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Science, Oceans and Environment Branch
Dept. of Fisheries and Oceans
Newfoundland Region
P.O. Box 5667
St. John's NF A1C 5X1
e-mail address: tillmanj@dfo.mpo.gc.ca
Internet address: www.dfo-mpo.gc.ca/csas

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